The Illusion of Life: Chapter 3 The Principles of Animation

There are twelve fundamental principles of animation: Squash and Stretch, Anticipation, Staging, Straight Ahead Action and Pose to Pose, Follow Through and Overlapping Action, Slow In and Slow Out, Arcs, Secondary Action, Timing, Exaggeration, Solid Drawing, and Appeal. The paper states that the most important type of animation is Squash and Stretch. The squash position is either flattened out by pressure or bunched up and pushed together. The stretched position shows the same form in a very extended condition. An example that is used to illustrate squash and stretch is a flour sack. When the sack is dropped, it squashes out to its fullest shape, and when picked up by the top corners, it stretches out to its longest shape; the sack never changes volume.

I really like how the authors gave two visual examples for the bouncing ball. This allows readers to easily understand the difference of using Squash and Stretch in an animation and not using Squash and Stretch. The animation that uses Squash and Stretch flattens out the ball as it approaches the ground, giving it a more realistic look, as opposed to having the ball always be a perfect circle. I also think that it is interesting how they pointed out that the ball would seem to have more weight if the drawings were closer together at the top and spaced farther apart at the bottom. I believe that the authors should have stated how they came to this conclusion. Did they conduct user studies? If so, how many people were surveyed, etc?

Follow Through and Overlapping Action were created to eliminate the sudden stop between actions of characters. Squash and Stretch can be combined with Follow Through and Overlapping Action to give a feeling of weight and living form to drawings. Once again the authors use a visual example to illustrate this concept. They used an animation of Les Clark to show the concept being applied to the character’s feather. Seeing this image helps users make sense of the concept. I wish there were videos attached or linked from this paper so that I could see the concepts in action. This also applies to the elves of Snow White animation. Next to the image, the authors state that “By itself the drawing is too broad, but in action, it is never seen, only felt.”

Appeal is used to ensure that the animations have pleasing designs, are simple, and charming. The authors state that eyes are drawn to the figure that has appeal, and are held there until the person appreciates what they are seeing. I like how the authors described how ugly animations also are eye-catchy but they don’t build character; “there is shock value, but no story strength.” I believe that the concept of Appeal also applies to visualizations in general. Visualizations should have pleasing designs, be simple enough that a user can understand without having to read instructions, and should be eye-catchy.
Pad++: A Zoomable Graphical Sketchpad For Exploring Alternate Interface Physics

Pad++ allows users to create and interact with structured information based on a zoomable interface. It supports colored text, graphics, images, portals, and HTML. It focuses on providing smooth zooming within large graphical datasets and on providing a design that makes it relatively easy for third parties to build applications using it. Pad++ can be used to visualize hierarchical data since information that is deeper in the hierarchy can be made smaller. Users can access this information by zooming.

I think it’s interesting how the authors pointed out that there is no relationship between the window that is opened because of a hyperlinked that was clicked on and the window that contained the hyperlink. I had never noticed this lack of connection, but it makes sense that some relationship should be shown. I think that using the tree to visualize this makes a lot of sense. In my Computer Science classes we learn about trees as being graphs, where there are parent nodes and child nodes. Because of this, the visualization where each window is a node, the parent node represents the window with the hyperlink, and the child node represents that window that opened when the hyperlink was clicked on, makes sense.

The paper states that Pad++ works on browsers such as Mosaic and Netscape. This paper was last updated in 1996; I’m curious to know what the current status of Pad++ is and if it works on more current browsers, such as Safari, Firefox and Internet Explorer.

The authors state that when a user clicks on a page, the camera animates to that page, and whenever a new page is opened, the camera centers on that page. They state that this layout problem is challenging because the visualization graph could contain cycles. I was confused by the explanation of why this is challenging. They state that we should “imagine taking that node [root node] and shaking the graph out. Its neighbors become children, and the children’s neighbors become grandchildren, etc.” I was confused by the expression “shaking the graph out.” Perhaps the authors could have provided some type of visual to better illustrate this.

I really like the Directory Browser visualization. Unfortunately there was only one paragraph describing this visualization; I wish the authors had elaborated on some of the details. For example, they state that the files are represented by solid squares colored by file type. I wonder if by file type, they mean that “.doc” is a color and “.pdf” is another color, or if users somehow use labels for files, for example “family files” are one color, while “work files” are another color. I like how users can zoom in and out of the visualization in order to better compare and contrast the files in different directories. The authors included an image of the file system that is pretty zoomed out. I think they should also have included an image that is pretty zoomed in, just to give readers an idea of what it looks like zoomed in as well.